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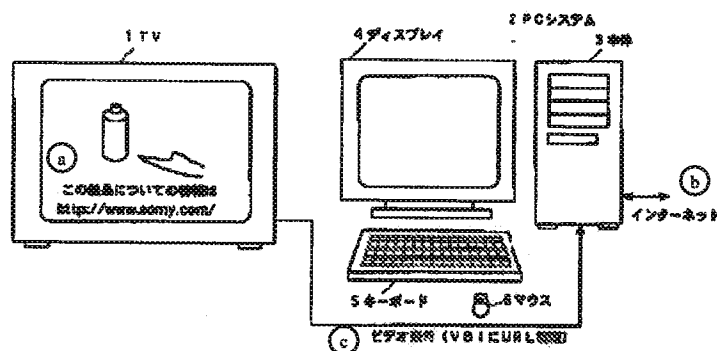
# (57) Abstract

## Purpose

To enable easy access to a WWW site related to an image displayed on the screen of a TV receiver or the like.

## Constitution

A WWW site can be accessed by clicking once the button of mouse (6) while watching the screen of display (4) of PC system (2), or by carrying out the same operation using a remote control (not shown in the figure) while watching the screen of TV receiver (1). The same constitution may be adopted for Internet televisions or web televisions.



- Key:
- a For information on this product:
  - b The Internet
  - c Video signal (URL information in VBI)
  - 2 PC system
  - 3 Main body
  - 4 Display
  - 5 Keyboard
  - 6 Mouse

### Claims

1. A URL information transmission method characterized in that the URL information is inserted in the VBI of the video signal for transmission.

2. The URL information transmission method as cited in Claim 1, characterized in that the URL information is inserted in the 20th line and 283rd line of the VBI.

3. A URL information transmission device characterized in that it comprises a first means that outputs the video signal,

a second means that outputs the URL information,

and a third means that inserts the output of said second means in the VBI of the output of said first means.

4. The URL information transmission device as cited in Claim 3, characterized by the following facts: said video signal is prepared by decoding the data-compressed video signal; and said URL information is prepared by decoding and then encoding the URL information with said information attached to the data-compressed video signal.

5. The URL information transmission device as cited in Claim 3, characterized in that said video signal is played back from a recording medium.

6. A method for accessing the Internet characterized in that while an image is displayed by means of the video signal, the URL information inserted into the VBI of the video signal is decoded, and the site specified by the URL information may be accessed.

7. The method for accessing the Internet as cited in Claim 6, characterized in that it also displays the pointer indicating transmission of said URL information.

8. An Internet connection device characterized in that it has a fourth means that decodes the URL information inserted into the VBI of the video signal,

and a fifth means that accesses the site specified by the URL information decoded with the fourth means.

9. The Internet connection device as cited in Claim 8, characterized in that it has a sixth means that accommodates the URL information decoded with the fourth means.

10. The method for accessing the Internet characterized by the following facts: on the sender side, the URL information is inserted into the VBI of the video signal and is transmitted; on the receiver side, the video signal is received and the URL information is decoded; and the site specified by the URL information may be accessed.

11. An Internet connection system characterized in that it has a URL information transmitter that acquires the URL information inserted into the VBI of the video signal and transmits it,

and an Internet connection device, which receives the video signal transmitted by said URL information transmitter, decodes the URL information inserted into the VBI of the video signal, and accesses the site specified by the decoded URL information.

12. A recording medium characterized in that it records the video signal and the URL information related to the image displayed on the video display device by means of the video signal.

#### Detailed explanation of the invention

[0001]

##### Technical field of the invention

The present invention pertains to a system characterized in that the URL (Uniform Resource Locator) information displayed in the played back image of a television broadcast, DVD (Digital Video Disc), or other packaged media is transmitted to a television receiver (hereinafter television is to be referred to as a TV) by using the VBI (Vertical Blanking Interval), and the related information can be accessed.

[0002]

##### Prior art

During reception of a TV broadcast or during playback of packaged media, the URL of a WWW (world wide web) site on the Internet related to the image (a commercial or the like) is often displayed on the screen. As shown in Figure 22, for example, in order to access the WWW site displayed on the screen of TV (61), a personal computer (hereinafter to be referred to as a PC) system (62) connected to the Internet is used; the URL is input from keyboard (65), and, by clicking mouse (66), the WWW site may be accessed.

[0003]

On the other hand, recently, the so-called Internet TV containing an Internet connection device in the TV has been developed. Because it has both a TV broadcast tuner and an Internet connection device, it is possible to display the image of the TV broadcast and the image from the Internet on the screen. However, the aforementioned Internet TV exists only in the type that has a TV and the Internet connection device integrated with each other, so that, as shown in Figure 23, when access is attempted to the WWW site displayed on the image of the TV broadcast of Internet TV (67), it is necessary to input the URL with the keys of remote control (68).

[0004]

Similarly, as shown in Figure 24, even in the system having DVD player (69) and web TV (Internet connection device for TV) (70) connected to TV (61), in order to access the WWW site displayed on the screen of TV (61), it is necessary to use the keys of remote control (71) of web TV (70) to input the URL.

[0005]

Problems to be solved by the invention

With the aforementioned system, in order to access the WWW site related to the image displayed on the screen, key input of the URL displayed on the screen is necessary. Consequently, the process is complicated. Also, when the URL is no longer displayed on the, the target WWW site may not be accessible by entering it with the keys.

[0006]

The purpose of the present invention is to solve the aforementioned problems of the prior art by providing a means that can easily access the WWW site related to an image displayed on the screen.

[0007]

Means to solve the problems

The present invention provides a URL information transmission method characterized in that the URL information is inserted into the VBI of the video signal for transmission.

[0008]

The present invention provides a URL information transmission device characterized in that it has a first means that outputs the video signal, a second means that outputs the URL information, and a third means that inserts the output of said second means into the VBI of the output of said first means.

[0009]

According to the method for accessing the Internet of the present invention, while the image corresponding to the video signal is displayed, the URL information inserted into the VBI of the video signal is decoded, and the site specified by the URL information may be accessed.

[0010]

The Internet connection device of the present invention is characterized in that it has a fourth means that decodes the URL information inserted into the VBI of the video signal, and a fifth means that accesses the site specified by the URL information decoded with the fourth means.

[0011]

The method for accessing the Internet of this invention is characterized by the following facts: on the sender side, the URL information is inserted into the VBI of the video signal and is transmitted; on the receiver side, the video signal is received and the URL information is decoded; and the site specified by the URL information may be accessed.

[0012]

The present invention provides an Internet connection system characterized in that it has a URL information transmitter that acquires the URL information inserted into the VBI of the video signal and transmits it, and an Internet connection device, which receives the video signal transmitted by said URL information transmitter, decodes the URL information inserted into the VBI of the video signal, and accesses the site specified by the decoded URL information.

[0013]

The present invention provides a recording medium characterized in that it records the video signal and the URL information related to the image displayed on the video display device by means of the video signal.

[0014]

According to the present invention, the received video signal and the video signal played back from the recording medium is input to the video display device for display. The URL information corresponding to the contents displayed on the screen of the video display device is inserted into the VBI of the video signal. The image corresponding to the video signal is displayed on the screen of the video display device. In this image, a URL or pointer indicating transmission of the URL information is displayed.

[0015]

When the user thinks "I'd like to know this information" or "I want to buy this," or the like, he may click the mouse or press a button on the remote control, so that the URL information

inserted into the VBI is decoded by the Internet connection device, and the Internet may be accessed. Also, it is also possible to set a bookmark or the like by simply saving the URL.

[0016]

When a response comes back from Internet, the screen changes to a browser for display, and it is automatically saved to the HDD or the like.

[0017]

Embodiment of the invention

In the following, the embodiment of the present invention will be explained in detail in the following order with reference to figures:

1. Abstract of the system adopting the present invention
2. Method for inserting URL information into the VBI
3. System for processing URL information
  - (1) Sender side of TV broadcast
  - (2) Receiver side of TV broadcast
  - (3) DVD player
4. Constitution on the side of receiving URL information
5. Operation of the system adopting the present invention

[0018]

1. Abstract of the system adopting the present invention

Figures 1-3 illustrate schematically the system adopting the present invention.

[0019]

Figure 1 shows the constitution of TV (1) and PC system (2). PC system (2) has main body (3), display (4), keyboard (5), and mouse (6). Here, the constitution is such that the TV signal can be input from TV (1) to main body (3) of PC system (2). The video signal, the signal obtained by encoding the URL of the WWW site related to the image displayed on the screen of TV (1) (hereinafter to be referred to as URL information) is superposed on the VBI. The URL information may also be superposed at the sender side of the TV broadcast, or at TV (1). Also, when the URL information is recorded together with the video signal on a DVD or other packaged medium, and the URL information is superposed on the VBI of the video signal in playback.

[0020]

With the system shown in the figure, the WWW site may be accessed by any of the following operations: the button on mouse (6) may be clicked once while watching the screen of display (4) of PC system (2) (to facilitate explanation, the images are not displayed in the figure; however, in practice, the same image is displayed on the screen of TV (1)). As another operation, a remote control (not shown in the figure) is used to carry out the same operation while watching the screen of TV (1).

[0021]

Figure 2 shows the case of application to an Internet TV. Here, Internet TV (7) receives the television signal sent from a broadcasting station, and the URL of the WWW site related to the image corresponding to the video signal is displayed on the screen. Here, the URL information is inserted into the VBI of the video signal.

[0022]

As shown in the figure, one can access the WWW site simply by pressing once the access key provided on remote control (8) while watching the screen of Internet TV (7).

[0023]

Figure 3 shows the case of application to a system having DVD player (9) and web TV (10) connected to TV (1). In this system, the video signal played back by DVD player (9) is sent to web TV (10). From the DVD disc being played back by DVD player (9), together with the data-compressed video signal, the data-compressed video signal and the URL information corresponding to the URL in the image formed from the video signal are recorded. Here, in playback of the DVD disc, DVD player (9) decodes the video signal, and, at the same time, it plays back the URL information from the DVD disc superposed on the VBI of the video signal. Then, web TV (10) sends this video signal to TV (1). As a result, on the image of TV (1), the image is displayed and the URL is displayed in the image corresponding to the video signal played back by DVD player (9).

[0024]

As shown in the figure, one can access the WWW site shown by the URL displayed on the screen of TV (1) by simply pressing once the access key provided on remote control (11) of web TV (10) while watching the screen of TV (1).



[0025]

As explained above, in the system adopting the present invention, one can access the desired WWW site by simply pressing once the mouse of the PC system or the key on the remote control of an Internet TV or the like. Details of the systems shown in Figures 1-3 will be described later.

[0026]

## 2. Method for inserting URL information into the VBI

In the following, an example of the method for inserting URL information into the VBI will be explained with reference to Figures 4-9.

[0027]

With NTSC signals, the VBI corresponds to the 10th line –to the 21st line of the odd number field and the 273rd line –to the 284th line of the even number field. Here, it may partially enter and occupy the effective screen portion for use.

[0028]

It is also possible to insert the URL information into any portion of the VBI. For example, it may be carried on the terrestrial wave data broadcasting signal of the 10th to 13th line, or it may be carried on the video ID signal adopted in a packaged medium. The method in which it is carried on the video ID signal will be explained.

[0029]

As shown in Figure 4, in the effective video portion of the 20th line –to the 283rd line of VBI of the brightness signal, the reference signal (Ref) of 70 IRE and the digital signal of 20 bits represented by an amplitude of 70 IRE or 0 IRE are provided, and the 20-bit digital signal is coded and transmitted as the identification signal. In principle, the 20th line and the 283rd line transmit the same information. Clock frequency  $f_c$  is set at  $f_c = f_{sc}/8 = 447$  kHz. Here,  $f_{sc}$  represents the color sub-carrier frequency.

[0030]

As shown in Figure 5, the 20 bits of the identification signal shown in Figure 4 include word 0 (bit 1, bit 2), word 1 (bit 3 - bit 6), word 2 (bit 7 - bit 14), and CRCC (bit 15 - bit 20). Here, the 2 bits of word 0 represent the aspect ratio of the screen, and the 4 bits of word 1 represent the header that indicates the 16 types of information transmitted as word 2. Here, as shown in Figure 6, the header of word 1 uses "1000" to represent the header of the category

code, it uses "1001" to represent the header of the high-order data of the control code or character code, and it uses "1010" to represent the header of the low-order data of the control code or character code. The 6-bit category shown in Figure 6 is defined as shown in Figure 7. Here, "001100" undefined in Figure 7 is newly defined as representing the URL information.

[0031]

Figure 8 is a diagram illustrating an example of transmission of the URL information. First of all, as shown in Figure 8(a), in the first frame, bit 3 - bit 6 (word 1) are used to transmit "1000" as the header representing the category code; then, bit 7 is used to transmit the character information channel number (here, channel 1); then, bit 8 - bit 13 transmit the category information representing the URL information; and then, bit 14 transmits odd number parity code "0."

[0032]

Then, as shown in Figure 8(b), in the second frame, bit 3 - bit 6 transmit "1001" as the header representing the high-order character code; then, bit 7 - bit 13 transmit "1100010" representing the high-order data of character "h"; and then, bit 14 transmits "0" as the odd number parity code.

[0033]

Then, as shown in Figure 8(c), in the third frame, bit 3 - bit 6 transmit "1010" as the header representing the low-order character code; then, bit 7 - bit 13 transmit "0001011" representing the low-order data of character "h"; and, then, bit 14 transmits odd number parity code "0."

[0034]

Similarly, as shown in Figures 8(d)-(g), in the fourth - seventh frames, the data representing character "t" is transmitted in two consecutive rounds. Then, similarly, the data representing the characters corresponding to the URL displayed on the screen (such as "http://www.somy.com/") are transmitted. Also, in each frame, bit 1 - bit 2 transmit the access information, and bit 15 - bit 20 transmit the CRCC (cyclic redundancy check code).

[0035]

### 3. System processing URL information

#### (1) Sender side of television broadcast

Figure 9 is a diagram illustrating the system in which the URL information is inserted into the VBI on the sender side of a television broadcast. Here, video source (11) carries out processing so that the URL is displayed on the screen when the video signal of a commercial or the like is output. As shown in Figure 8, URL encoder (12) forms the URL information. Here, VBI inserter (13) outputs the URL information from URL encoder (12) inserted in the 20th line and 23rd line of the video signal output from video source (11). The video signal with URL information inserted in it by means of said VBI inserter (13) modulates the carrier by modulator (14). The modulated video signal (the signal with its carrier modulated by the video signal) is mixed with the modulated audio signal (the signal with its carrier modulated by the audio signal) by mixer (15), and, after the mixed signal has been frequency transformed and amplified by transmitter (16), the signal is sent from transmission antenna (17) as electromagnetic waves.

[0036]

#### (2) Receiver side of television broadcast

Figure 10 shows a portion of the constitution of the equipment on the receiver side. Figure 10(a) shows the constitution when the URL information inserted into the VBI in the video signal of the received television broadcasting is used as-is. (b) shows the constitution when VBI inserted by the VBI inserter in the video signal of the received television broadcasting is changed. Figures 10(a) and (b) show the constitution of a portion of TV (1) shown in Figure 1, or a portion of Internet TV (7) shown in Figure 2, or a portion of a video cassette recorder (not shown in the figure) or the like.

[0037]

As shown in Figure 10(a), the electromagnetic waves of the television broadcast received by receiving antenna (20) are tuned to the desired channel by means of tuning unit (21) by means of tuner (21), and the video signal is detected by the detector portion. URL information is inserted into the VBI of this video signal. Then, the video signal is sent to TV (1) shown in Figure 1, or Internet TV (7) shown in Figure 2, or a video cassette recorder or other video signal processor (not shown in the figure). As a result, the URL is displayed on the screen of TV (1) shown in Figure 1 or the screen of Internet TV (7) shown in Figure 2. Also, a video cassette recorder can carry out recording/playback of the video signal having URL information inserted into the VBI.

[0038]

As shown in Figure 10(b), just as that shown in Figure 10(a), the electromagnetic wave of the television broadcast received by receiving antenna (20) are tuned at the desired channel by means of tuner (21), and the video signal is detected by the detector portion. URL information is also inserted into the VBI of the video signal. This video signal is sent to data decoder (22). Here, the URL information is decoded. The decoded URL information is sent to URL encoder (23), and here the URL information is encoded. VBI inserter (24) inserts the URL information encoded by URL encoder (23) into the VBI at a location different from the VBI where the URL information has been inserted on the sender side among the VBI of the video signal output from the detector portion of tuner (21). For example, the signal of the terrestrial wave data broadcast has a high frequency, so that it cannot be recorded/played back with a video cassette recorder. Here, by having it carried on the video ID or other signal with a low transmission rate, the URL information can be stored even in a video cassette recorder. Also, even when the various types of data, such as the digital broadcast, are carried on the data area in the bit stream, after URL information is decoded from the various types of data, and the URL information can be encoded and carried on the VBI.

[0039]

### (3) DVD player

Figure 11 is a block diagram illustrating the constitution of the main portion of a DVD player. This DVD player has the following parts: optical pickup (31) that acquires the data recorded on the optical disc, error correction/decoding circuit (32) that corrects the error in the reproduced data acquired by optical pickup (31), decryption circuit (33) that decrypts the encryption of the error corrected played back data, MPEG decoder (34) that decodes the decrypted data, NTSC encoder (35) that encodes the video signal, which has been decoded by MPEG decoder (34), to a video signal in the NTSC format, URL encoder (36) that encodes the URL information, VBI inserter (37) that inserts the URL information output from URL encoder (36) into the VBI of the video signal output from NTSC encoder (35), and control data extraction circuit (38) that acquires the output of error correction/decoding circuit (32) and the output of decryption circuit (33) and inputs to it and extracts the various types of control data needed for decryption circuit (33), MPEG decoder (34), NTSC encoder (35) and URL encoder (36).

[0040]

The video signal and audio signal encrypted and recorded on the optical disc are encoded to MPEG format or the like and played back as shown in Figure 11. Here, the URL information has been recorded as additive data separated from the video signal. The DVD player decrypts the

encryption by means of decryption circuit (33), and the video signal and audio signal are decoded by means of MPEG decoder (34). Also, by means of control data extraction circuit (38), the URL information and other control data recorded as additive data are decoded. The decoded URL information is sent to URL encoder (36) for use in encoding the URL information. The other control data are sent to decryption circuit (33), MPEG decoder (34), and NTSC encoder (35) for use in various decoding processes.

[0041]

#### 4. Constitution of receiver side of URL information

Figures 12-14 show the constitution of the URL information on the receiver side. Here, Figure 12 shows the internal constitution of main body (3) in PC system (2) shown in Figure 1. Figure 13 shows the portion in the internal constitution of Internet TV (7) shown in Figure 2, with the tuner removed. Figure 14 shows the internal constitution of web TV (10) shown in Figure 3.

[0042]

As shown in Figure 12, the main body of the PC system has the following parts: CPU (41), interface (42) for the keyboard and the mouse, modem (43), memory (44) for storing various types of data, video capture device (45) that fetches the video signal sent from TV (1), video graphic controller (46), and video buffer memory (47). Here, memory (44) consists of RAM. Also, video capture device (45) contains VBI decoder.

[0043]

As shown in Figure 13, the Internet TV has the following parts: Internet connection device (51), VBI decoder (52) that decodes the data inserted into the VBI of the video signal that has been separated by the tuner, microcomputer (53) (MAICON), video signal processor (54) that carries out processing, such as R, G, B encoding, etc. for the video signal separated by the tuner, and RGB switch (55) that selects the R, G, B signals output from video signal processor (54) and the R, G, B signals of VGA format output from Internet connection device (51).

[0044]

As shown in Figure 14, the web TV has the following parts: CPU (61), interface (62) for remote control, modem (63), memory (64), VBI decoder (65) that decodes the data inserted into the VBI of video signal sent from DVD player (9), video graphics controller (66), NTSC encoder (67) that converts the output of video graphics controller (66) to the video signal in NTSC

format, and video switch (68) that selects the video signal sent from DVD player (9) and the output of NTSC encoder (67).

[0045]

5. Operation of the system in which the present invention is applied

Figures 15, 17 and 19 are flow charts illustrating the operation of the system shown in Figure 1. Figure 16 is a diagram illustrating the image shown on display (4) in the operation shown in Figure 15. Figure 18 is a diagram illustrating the image shown on display (4) in the operation shown in Figure 17. Figure 20 is a diagram illustrating the image shown on display (4) in the operation shown in Figure 19. Figures 19-21 are diagrams illustrating the case when plural pieces of URL information are registered as a bookmark or the like, to be accessed later. In the case of direct access, first of all, the user operates PC system (2) to fetch the video signal from TV (1) into main body (3), and set it for show on display (4). Also, for the audio signal input with the video signal from TV (1), it is set to output from the speaker (not shown in the figure) of PC system (2) (step S1 in Figure 15).

[0046]

In this case, in main body (3) of PC system (2) shown in Figure 12, the video signal is fetched by video capture device (45). Here, the signal is converted to the chrominance component signal composed of Y (luminance), U (B-Y), V (R-Y). In addition, by means of video graphics controller (46), the signal is converted to the primary color signals R, G, B, and the signals are sent to display (4). In signal processing, video graphic controller (46) temporarily stores the signal in video buffer memory (47). As a result, the image shown in Figure 16(a) is displayed on the screen of display (4) of PC system (2). Although not shown in Figure 12, the same process is carried out for the audio signal. Then, the user operates PC system (2) to start up the Internet browser, so that connection is made to the Internet via modem (43), and it goes into standby (step S2).

[0047]

Then, the user clicks mouse (5) [sic; 6] while watching the screen of display (4) of PC system (2) or the screen of TV (1) (step S3).

[0048]

When mouse (5) [sic; 6] is clicked, PC system (2) transfers the URL information decoded from the VBI data to the browser, and the desired site is accessed via the Internet (step S4). In this case, CPU (41) receives the URL information output from the VBI decoder in video capture

device (45) via a bus, and the site indicated by the URL information is accessed. Then, at the time when connection to the desired site is confirmed, the image on the screen of display (4) is switched to that of the browser (step S5). At this time, one may also adopt a method in which the window of the browser is superposed for display. Figure 16(b) is a diagram illustrating the state of superposed display (step S6).

[0049]

After that, the operation is carried out just as the operation of any browser of the prior art. Then, if the return button is clicked, it returns to the original TV image, and the browser returns to standby.

[0050]

Here, as shown in Figure 16(a), the URL is displayed on the screen of display (4). However, the URL may not be displayed on the screen. In this case, it is necessary to notify the user of the state of insertion of the URL information into the VBI. In this case, there is no need to display the URL in full scale on the screen. Also considered is the case of the URL being too long to display. Here, a pointer indicating "URL available" is displayed to address this problem. Figure 17 is a flow chart illustrating this case. Also, Figure 18 shows the image displayed on display (4). In Figure 18, the same symbols as those adopted in the above in Figure 16 are adopted to represent the same processing as that in Figure 16.

[0051]

As shown in Figure 18(a), on the screen of display (4), the URL shown in Figure 16(a) is not displayed. Consequently, it is impossible to know that the URL information related to the image displayed on the screen of display (4) has been inserted into the VBI of the video signal. Here, by adding the process of step S3A in Figure 17, as shown in Figure 18(b), a pointer for notifying that URL information has been transmitted is displayed on the screen of display (4).

[0052]

Even when recognition is made of a bookmark or the like, first of all, the user operates PC system (2), so that the video signal from TV (1) is fetched into main body (3) and displayed on display (4). Also, for the audio signal input together with the video signal from TV (1), too, the signal is set to output from the speaker of PC system (2) (step S11 in Figure 19). This operation is the same as that in step S1 shown in Figure 15. Consequently, in this case, on the screen of display (4) of PC system (2), the image shown in Figure 20(a) is displayed.

[0053]

Then, the Internet browser is started, and the bookmark function goes into standby (step S12).

[0054]

Then, the user clicks mouse (5) [sic; 6] while watching the screen of display (4) of PC system (2) or the screen of TV (1) (step S13). When mouse (5) [sic; 6] is clicked, PC system (2) sends the URL information decoded from the VBI data to the browser, and adds it to the bookmarks (step S14). At this time, CPU (41) receives the URL information output from the VBI decoder in video capture device (45) via a bus, and this URL information is stored in the bookmark storage area in memory (44).

[0055]

Then, the image shown on display (4) of PC system (2) is switched to that of the browser, and the window of the bookmark is displayed (Figure 20(b)). In this case, CPU (41) reads the contents stored in the bookmark storage area in memory (44), and it sends the contents via video graphics controller (46) to display (4) (step S15).

[0056]

When the user uses mouse (5) [sic; 6] to select the desired URL from the list of the bookmarks displayed on the screen, CPU (41) accesses the site indicated by the URL information via the Internet (step S16). Here, when connection is made to the desired site, related information is displayed on the screen of display (4). At this time, as shown in Figure 20(c), the window of the browser may be superposed in the display.

[0057]

In this case, one may also adopt a constitution for use of an application in which the URL information is stored in memory (44) while the bookmark function of the browser is not in use. Figure 21 is a flow chart illustrating this case. Here, the same symbols as those adopted in the above in Figure 19 are adopted to represent the same symbols as those shown in Figure 19. The steps here corresponding to those in Figure 19 are attached with a '<'.>.

[0058]

As shown in Figure 21, in step S12', the user initiates the application for saving the URL information to memory (44), and the process goes into memory standby. Then, in step S14', the URL information decoded from the VBI data is fetched into memory (44). In the next step S15',



on the screen of display (4), a list of the URL information stored in memory (44) is displayed. Here, when the desired URL is selected by mouse (5) in step S16', PC system (2) starts the browser, and then it sends the URL information to the browser, and the desired site indicated by the URL information is accessed via the Internet.

[0059]

The following method may also be adopted: In step S14 shown in Figure 19 or step S14' shown in Figure 21, the processing ends. Then, with the browser alone, the Internet may be accessed from the bookmark. Also, here, the URL information is stored in a RAM or other memory. However, it is also possible to store it to a hard disc or the like.

[0060]

The operation of the system shown in Figure 2 and the operation of the system shown in Figure 3 are basically the same as the operation of the system shown in Figure 1. Consequently, it will not be explained in detail again.

[0061]

As explained above, for the system adopting the present invention is, the user can access a WWW site simply by one click of the mouse or the push of one button on the remote control while watching the screen. Also, it is possible to save the URL information of the site for alter access later simply by one click of the mouse or one push of a button on the remote control while watching the screen.

[0062]

In addition, the present invention is not limited to the aforementioned embodiment. Various modifications may be adopted. For example, as shown in Figure 3, instead of a DVD player, one may also use a video CD player or a VCR (video cassette recorder; analog recording system or digital recording system) or the like. In the constitution of Figure 9, the television signal is transmitted over the air as electromagnetic waves. However, one may also adopt a method in which the television signal is transmitted via cable. In addition, one may also adopt a method in which the television signal is digitalized and transmitted.

[0063]

Effects of the invention

As explained in detail in the above, according to the present invention, when the user wants to know related information while watching the image displayed on the screen, the user

may simply click once the mouse or press once a button on the remote control, and then access the related WWW site. Consequently, the related information can be easily procured, and home shopping or the like can be carried out easily. Also, it is possible to save the URL of the related information and to access the WWW site at any desired time.

#### Brief description of the figures

Figure 1 is a diagram illustrating the constitution when the present invention is applied to a system composed of a TV and a PC system.

Figure 2 is a diagram illustrating the constitution when the present invention is applied to an Internet TV.

Figure 3 is a diagram illustrating the constitution when the present invention is applied to a system composed of a TV, DVD player and web TV.

Figure 4 is a diagram illustrating the constitution of the video ID signal.

Figure 5 is a diagram illustrating the code allotment in the video ID signal.

Figure 6 is a diagram illustrating the code of transmission of word 1 and word 2 shown in Figure 5 when text information is transmitted.

Figure 7 is a diagram illustrating an example of the category code shown in Figure 6.

Figure 8 is a diagram illustrating an example of transmission of the URL information.

Figure 9 is a diagram illustrating the system in which the URL information is carried on the VBI on the sender side of a television broadcast.

Figure 10 is a block diagram illustrating a portion of the constitution of the equipment on the receiver side of television broadcasting according to the present invention.

Figure 11 is a block diagram illustrating the main portion of the DVD player on which the present invention is adopted.

Figure 12 is a block diagram illustrating the internal constitution of main body (3) in the PC system shown in Figure 1.

Figure 13 is a block diagram illustrating the portion of the internal constitution of the Internet TV shown in Figure 2, excluding the tuner.

Figure 14 is a block diagram illustrating the internal constitution of the web TV in Figure 3.

Figure 15 is a flow chart illustrating the case of direct access in the system shown in Figure 1.

Figure 16 is a diagram illustrating the image shown on the display in the operation shown in Figure 15.

Figure 17 is a flow chart illustrating the operation of direct access in the system shown in Figure 1, without showing of URL on the display.

Figure 18 is a diagram illustrating the image shown on the display in the operation shown in Figure 17.

Figure 19 is a flow chart illustrating the operation in which plural URL information pieces are registered in the bookmarks in the system shown in Figure 1, followed by access.

Figure 20 is a diagram illustrating the image shown on the display in the operation shown in Figure 19.

Figure 21 is a flow chart illustrating the operation in which plural pieces of URL information are stored in the system shown in Figure 1, followed by access.

Figure 22 is a diagram illustrating the operation in the system consisting of TV and PC system of the prior art in which the WWW site of the URL displayed on the screen is accessed.

Figure 23 is a diagram illustrating the operation of access to the WWW site of a URL displayed on the screen of the Internet TV of the prior art.

Figure 24 is a diagram illustrating the operation of access to the WWW site of a URL displayed on the screen in the system composed of TV, DVD player and web TV of the prior art.

#### Explanation of symbols

1	TV
2	PC system
4	Display
6	Mouse
7	Internet TV
8	Remote control
9	DVD player
10	Web TV
11	Video source
12, 23	URL encoder
13, 24	VBI inserter
22	Data decoder
43, 63	Modem
44, 64	Memory
51	Internet connection device
52	VBI decoder

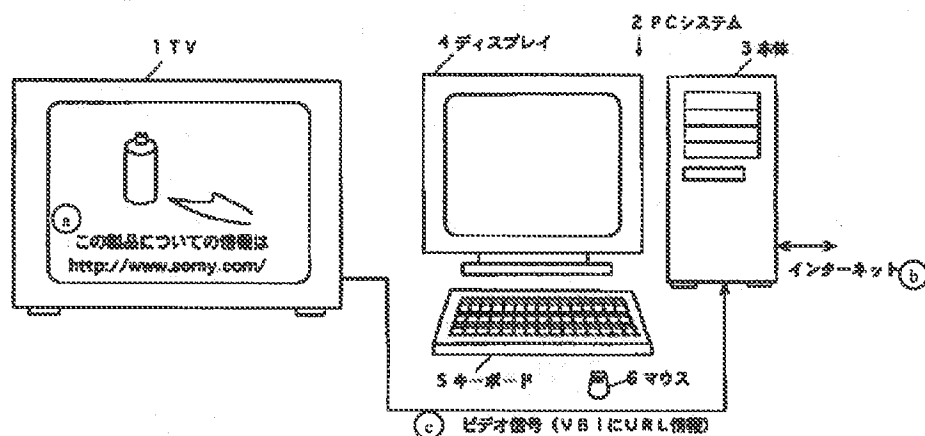


Figure 1

- Key:
- a For information on this product:
  - b The Internet
  - c Video signal (URL information in VBI)
  - 2 PC system
  - 3 Main body
  - 4 Display
  - 5 Keyboard
  - 6 Mouse

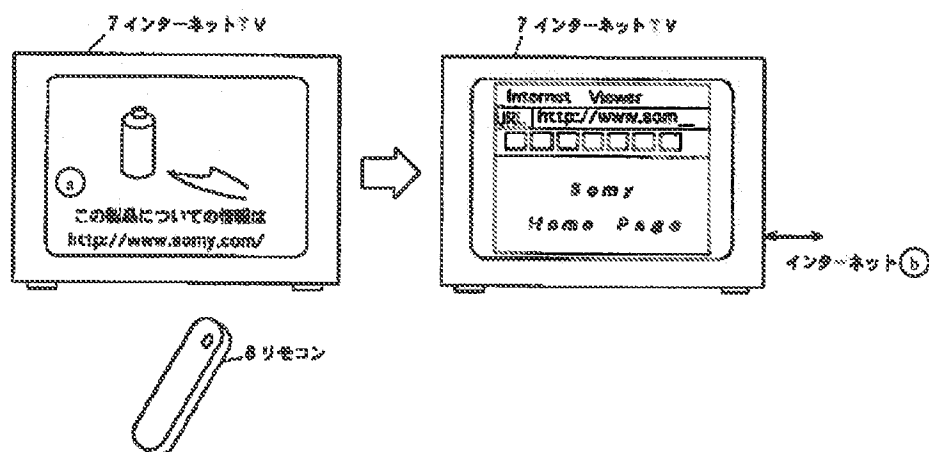


Figure 2

- Key:
- a For information on this product:
  - b The Internet
  - 7 Internet TV
  - 8 Remote control

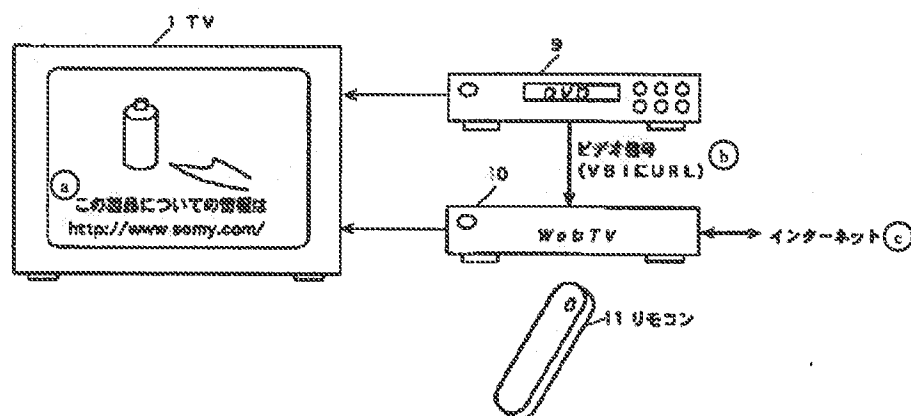


Figure 3

- Key: a For information on this product:  
 b Video signal (URL in VBI)  
 c The Internet  
 11 Remote control

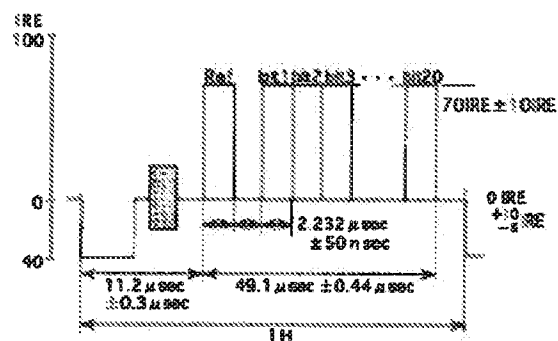


Figure 4

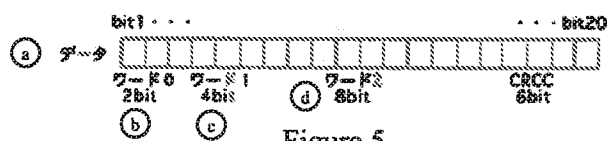
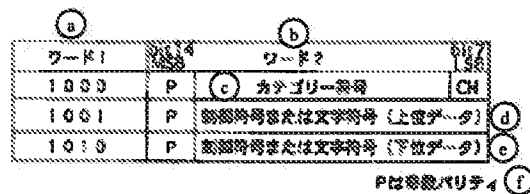


Figure 5

- Key: a Data  
 b Word 0  
 c Word 1  
 d Word 2



CH (チャンネル): チャンネル0 ("0"), チャンネル1 ("1")

カテゴリーコード: 6ビット計64種類のカテゴリーに分けられる。 (g)

制御コード, 文字コード: 2バイトのコードを上位, 下位に分けて送る。

Figure 6

- Key:
- a Word 1
  - b Word 2
  - c Category code
  - d Control code or character code (high-order data)
  - e Control code or character code (low-order data)
  - f P represents odd number parity
  - g CH (channel): channel 0 ("0"), channel 1 ("1")
- Category code: A total of 64 types of categories by means of 6 bits.
- Control code, character code: 2-byte code is divided to high-order and low-order portions for transmission.

b:18	b:13	(a) カテゴリー内容
000000		デロップ
000001		字幕 (b)
000010		編者/監製/制作関係
000011		
000100		
000101		タイトル (c)
000110		ソース情報
000111		
001000		プログラム付録情報第0 (d)
001001		プログラム付録情報第1
001010		
001011		
001100		
001101		
001110		
001111		
.		
.		
.		その他および空欄は未定値 (e)

Figure 7

- Key: a Category contents  
 b Drop  
 b Subtitle  
 Information for the hearing disabled  
 c Title  
 Source information  
 d Program-attached information #0  
 Program-attached information #1  
 e Others and blank are undefined

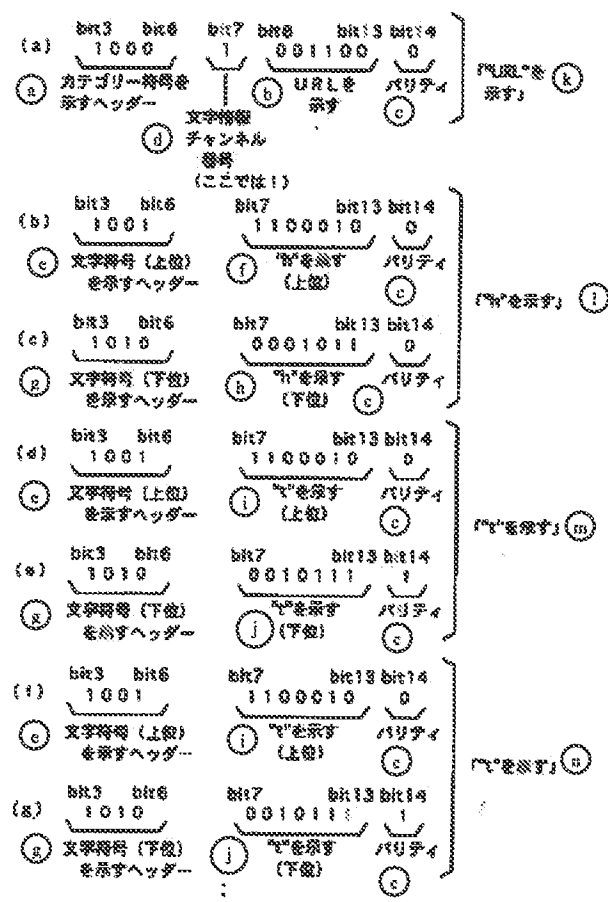


Figure 8

Key:	a	Header indicating category code
	b	URL is shown
	c	Parity
	d	Text information
		Channel No. (here, 1)
	e	Header indicating character code (high-order)
	f	"h" is shown (high-order)
	g	Header indicating character code (low-order)
	h	"h" is shown (low-order)
	i	"t" is shown (high-order)
	g	Header indicating character code (low-order)
	j	"t" is shown (low-order)
	i	"t" is shown (high-order)
	g	Header indicating character code (low-order)
	j	"t" is shown (low-order)
	k	"URL" is displayed
	l	"h" is displayed
	m	"t" is displayed
	n	"t" is displayed

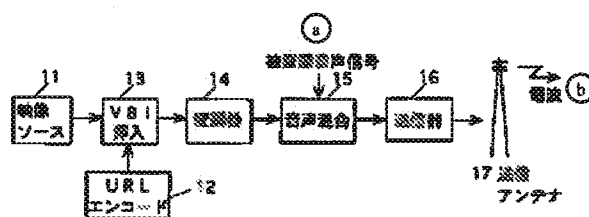


Figure 9

Key:	a	Demodulated audio signal
	b	Electromagnetic waves
	11	Video source
	12	URL encoder
	13	VBI inserter
	14	Modulator
	15	Mixer of audio signal
	16	Transmitter
	17	Transmission antenna



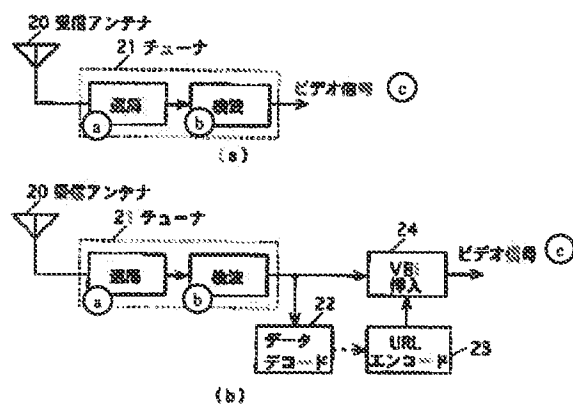


Figure 10

Key: a     Tuning  
 b     Detection  
 c     Video signal  
 20    Receiving antenna  
 21    Tuner  
 22    Data decoder  
 23    URL encoder  
 24    VBI inserter

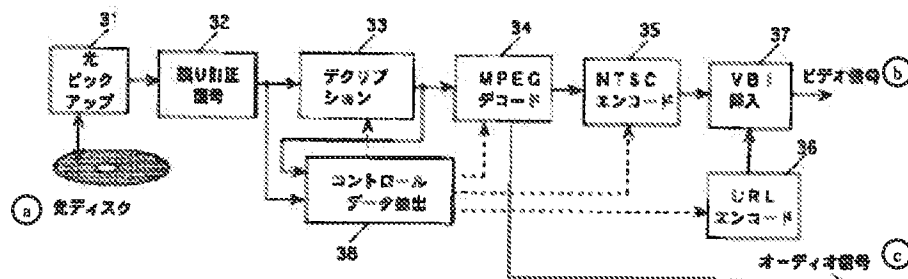


Figure 11

Key: a     Optical disc  
 b     Video signal  
 c     Audio signal  
 31    Optical pickup  
 32    Error correction/decoding circuit  
 33    Decryption circuit  
 34    MPEG decoder  
 35    NTSC encoder  
 36    URL encoder  
 37    VBI inserter

## 38 Control data extraction circuit

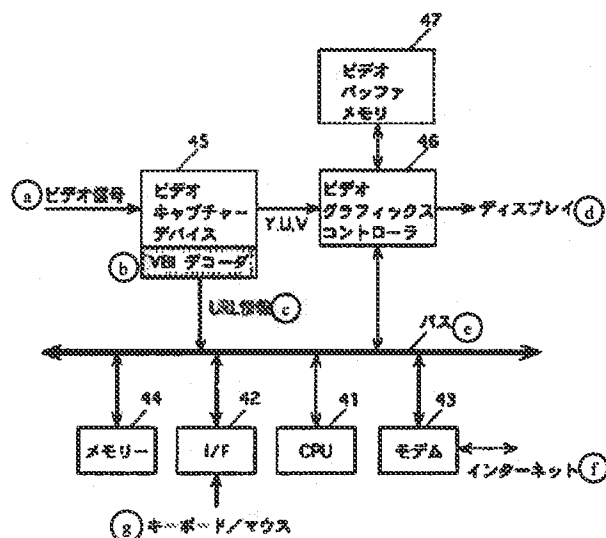


Figure 12

- Key:
- a Video signal
  - b VBI decoder
  - c URL information
  - d Display
  - e Bus
  - f The Internet
  - g Keyboard/mouse
  - 43 Modem
  - 44 Memory
  - 45 Video capture device
  - 46 Video graphic controller
  - 47 Video buffer memory

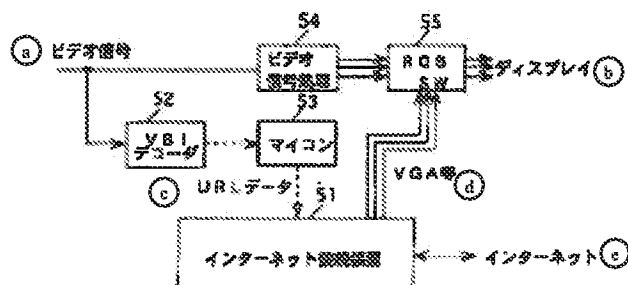


Figure 13

- Key:
- a Video signal
  - b Display
  - c URL data
  - d VGA or the like

- e The Internet  
 51 Internet connection device  
 52 VBI decoder  
 53 Microcomputer  
 54 Video signal processor

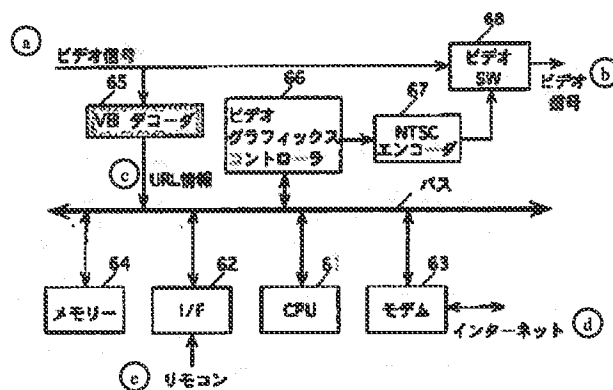


Figure 14

- Key: a Video signal  
 b Video signal  
 c URL information  
 d The Internet  
 e Remote control  
 63 Modem  
 64 Memory  
 65 VBI decoder  
 66 Video graphics controller  
 67 NTSC encoder  
 68 Video SW

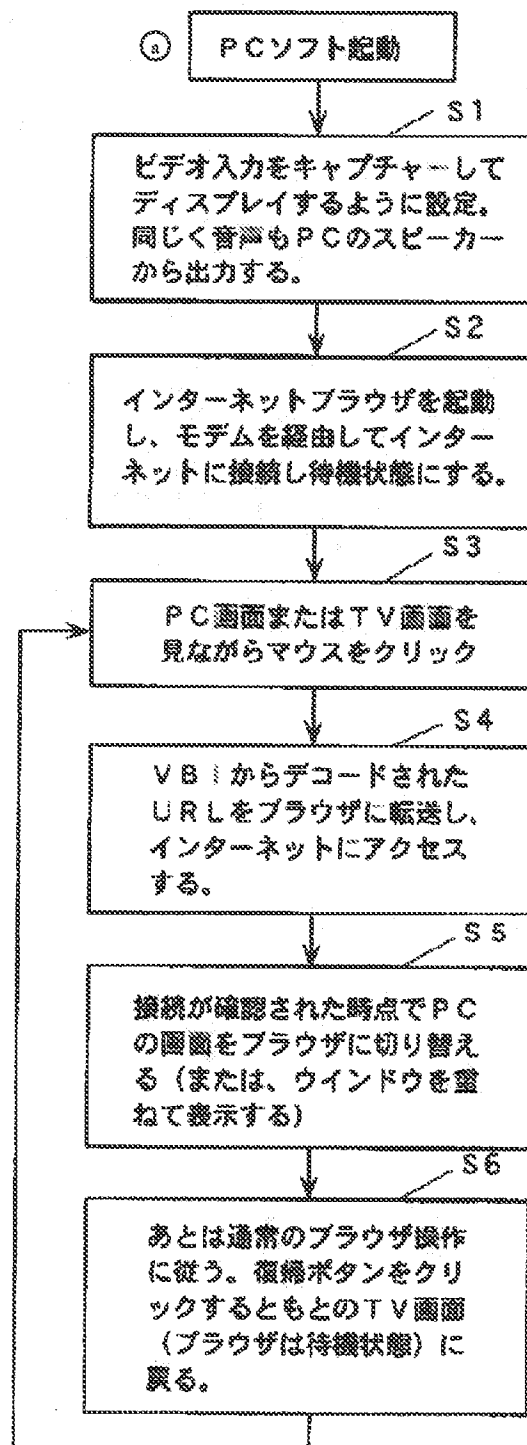


Figure 15

- Key: a Start of PC software
- S1 Video input is captured to display according to setting. Similarly, sound is output from the speaker of the PC.
- S2 Internet browser is started, and connection is made via the modem to the Internet, and standby is entered.
- S3 The mouse is clicked while watching image on a PC or image on a TV
- S4 Decoded URL is sent from the VBI to the browser, and the Internet may be accessed.
- S5 The image on the PC is switched to that of a browser at the time when connection is confirmed (or their windows may be superposed with each other in the display)
- S6 Then, browser operation is carried out as in the prior art. By clicking the return button, the previous TV picture is restored (while the browser goes into standby)

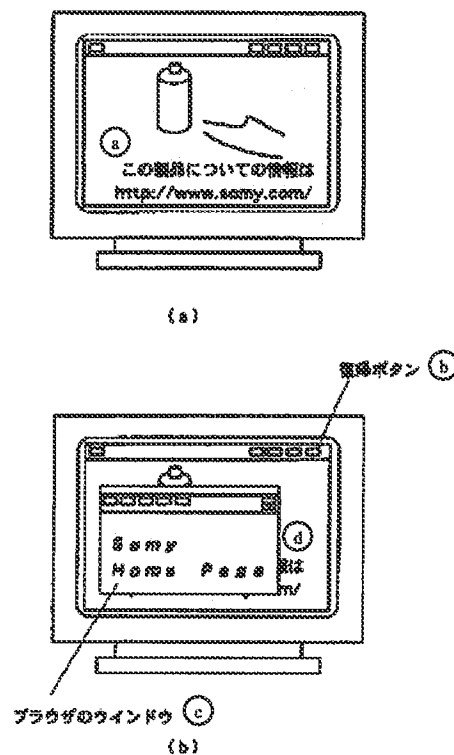


Figure 16

- Key: a For information on this product:
- b Return button
- c Window of browser
- d [illegible] m/

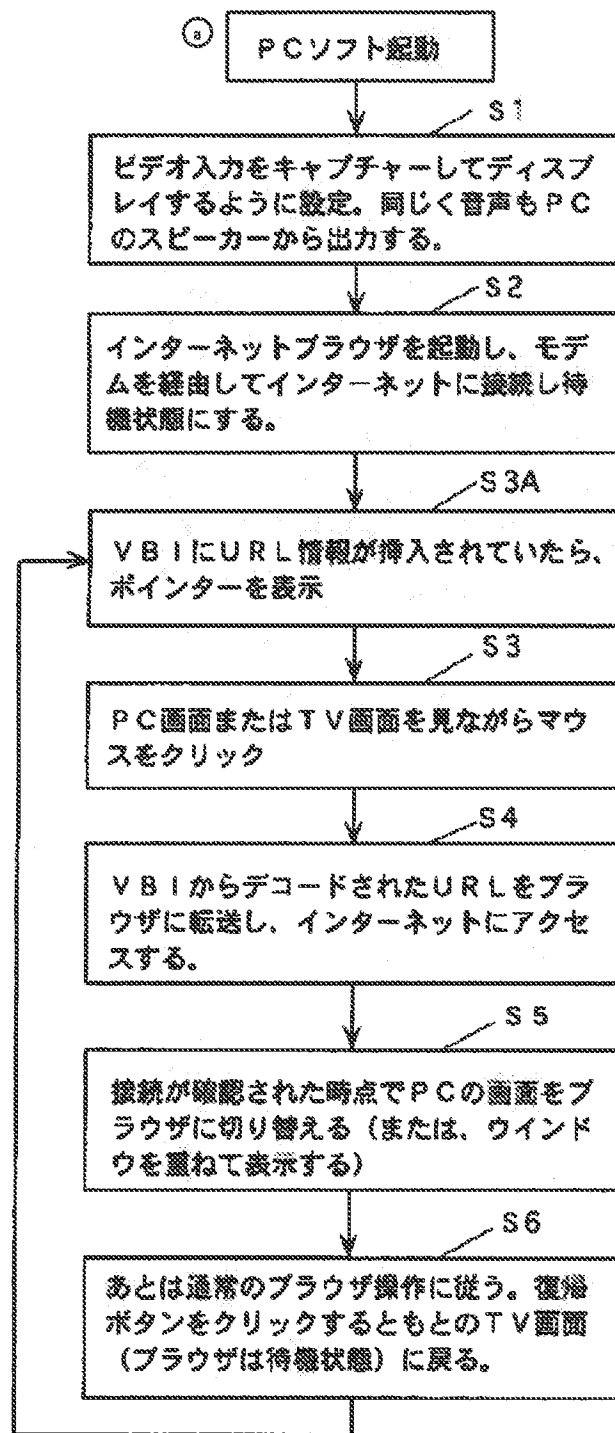


Figure 17

- Key: a Start of PC software
- S1 Video input is captured to display according to setting. Similarly, sound is output from the speaker of the PC.
- S2 Internet browser is started, and connection is made via the modem to the Internet, and it goes into standby.
- S3A As URL information is inserted into the VBI, a pointer is displayed
- S3 The mouse is clicked while watching image of PC or image of TV
- S4 Decoded URL is sent from the VBI to the browser, and the Internet is accessed.
- S5 The image of the PC is switched to that of the browser at the time when connection is confirmed (or their windows may be superposed with each other in the display)
- S6 Then, browser operation is carried out as in the prior art. By clicking the return button, the previous TV picture is restored(while the browser goes into standby)

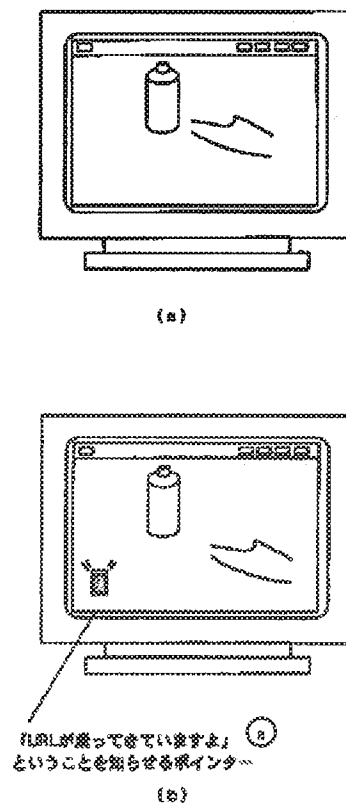


Figure 18

- Key: a Pointer notifying "URL is available"

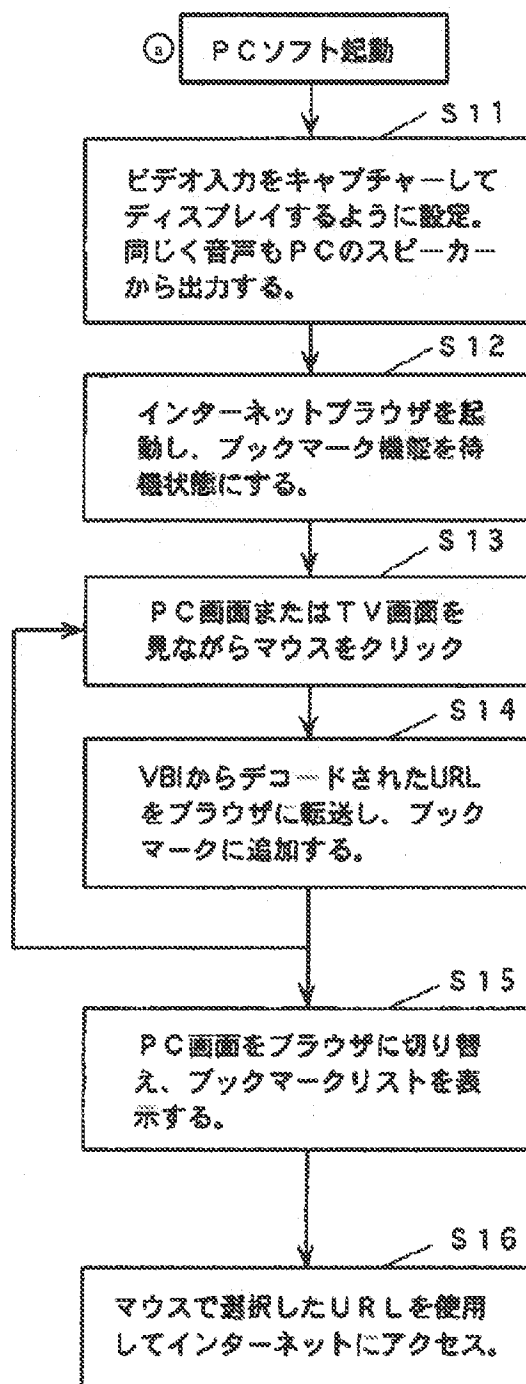


Figure 19



- Key: a Start of PC software
- S11 Video input is captured to display according to setting. Similarly, sound is output from the speaker of the PC.
- S12 Internet browser is started, and the bookmark function goes into standby.
- S13 The mouse is clicked while watching an image on a PC or image on a TV
- S14 Decoded URL is sent from the VBI to the browser, and a bookmark is added
- S15 The URL selected with the mouse is used to access the Internet
- S16 The site indicated by the URL information is accessed via the Internet

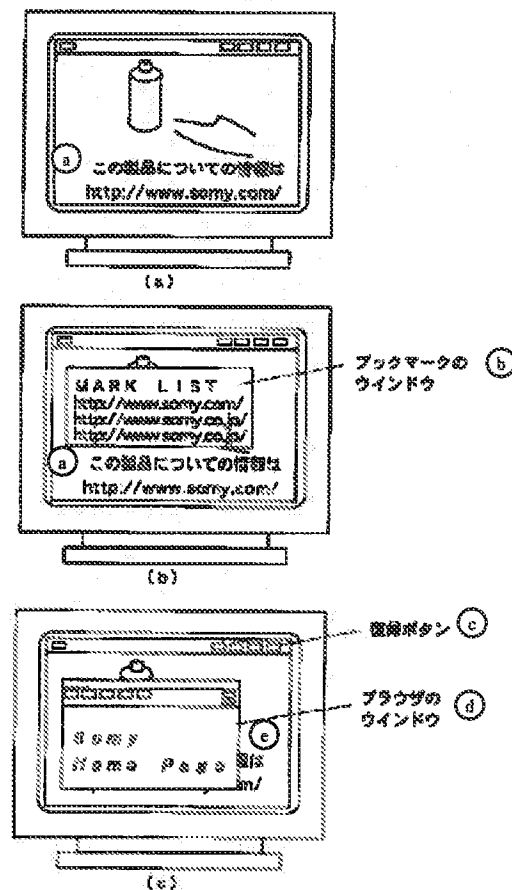


Figure 20

- Key: a For information on this product:
- b Window of bookmark
- c Return button
- d Window of browser
- e [illegible] m/

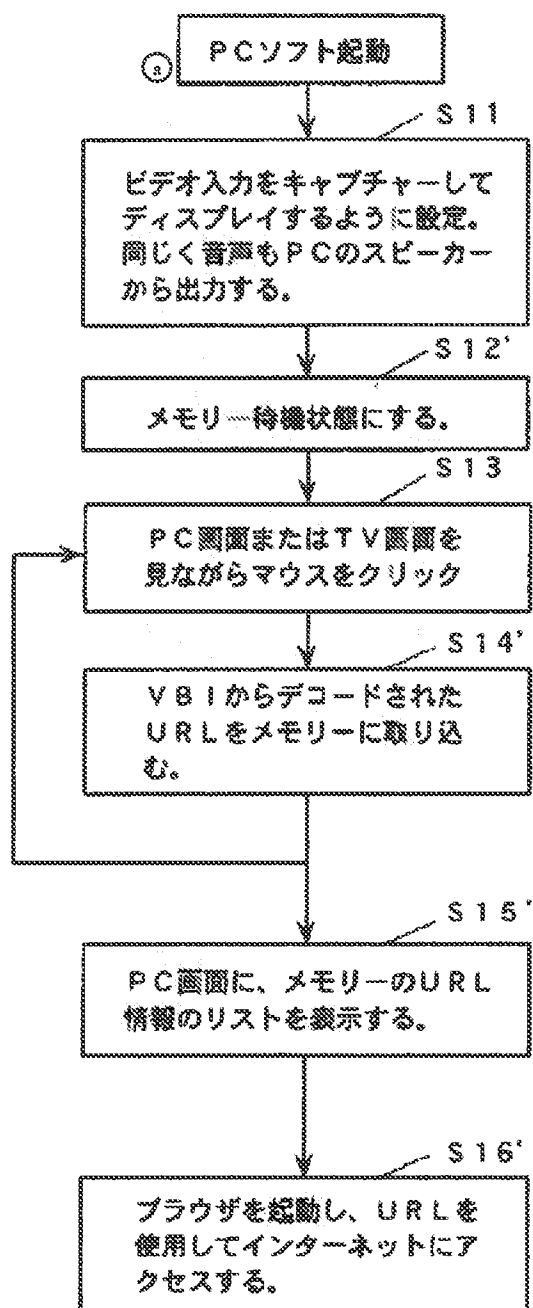


Figure 21

- Key: a Start of PC software
- S11 Video input is captured to display according to setting. Similarly, sound is output from the speaker of the PC.
- S12' Memory goes into standby.
- S13 The mouse is clicked while watching the image on a PC or image on a TV
- S14' Decoded URL from the VBI is fetched into the memory
- S15' List of URL information in the memory is displayed on the PC screen
- S16' Browser is started, and the URL is used to access the Internet

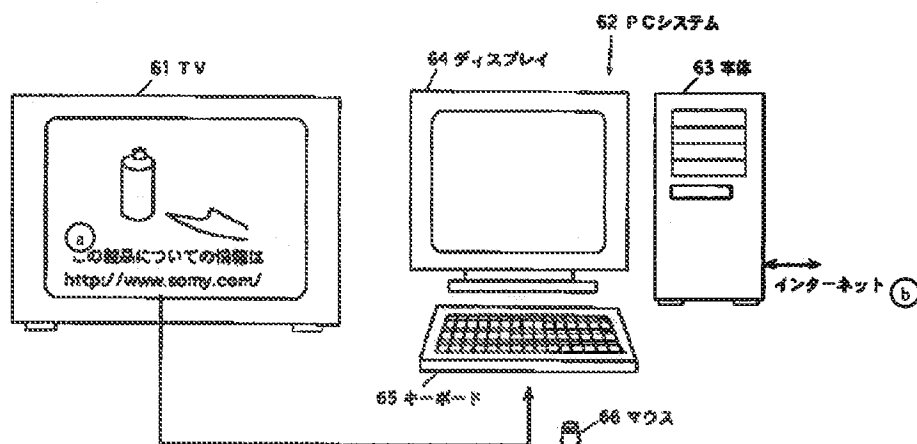


Figure 22

- Key: a For information on this product:
- b The Internet
- 62 PC system
- 63 Main body
- 64 Display
- 65 Keyboard
- 66 Mouse

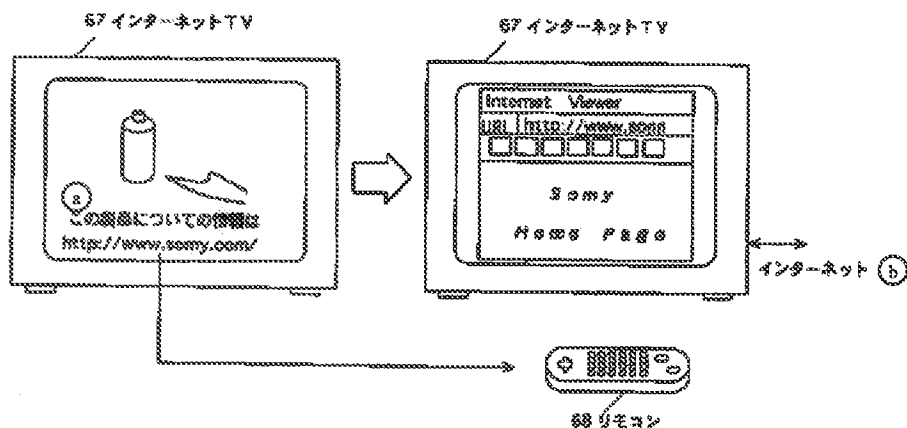


Figure 23

Key: a For information on this product:  
 b The Internet  
 67 Internet TV  
 68 Remote control

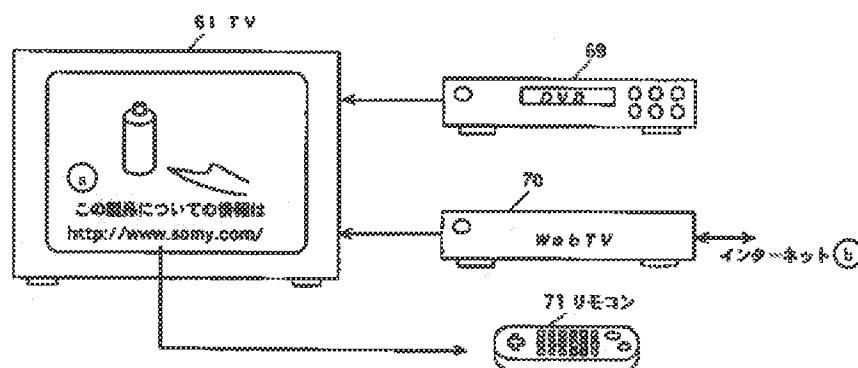


Figure 24

Key: a For information on this product:  
 b The Internet  
 71 Remote control